

REMARKS

By this amendment, claims 1, 3, 4 and 5 have been amended and no claim has been cancelled or added. Accordingly, claims 1-17 are currently pending in the application, of which claims 1, 4 and 6 are independent claims (It appears to be a mistake that the Office Action Summary indicates that claims 1-3 and 6-17 are pending in this application).

Entry of the Amendments and Remarks is respectfully requested because entry of Amendment places the present application in condition for allowance, or in the alternative, better form for appeal. No new matters are believed to be added by these Amendments. In view of the above amendments and the following Remarks, Applicant respectfully requests reconsideration and timely withdrawal of the pending objections and rejections for the reasons discussed below.

Office Action Summary

The Office Action Summary indicates that claims 1-3 and 6-17 are pending while claims 1-17 are actually pending (The Examiner rejected claims 4 and 5 in page 2 of the Office Action). Also, the Office Action Summary indicates that claims 4 and 5 are allowable while claims 4 and 5 are rejected in page 2 of the Office Action. Appropriate correction and clarification are respectfully requested.

Finality of Action

The Examiner stated "Applicant's arguments with respect to claims 1-17 have been considered but are moot in view of the new ground(s) of rejection". However, the current Office Action repeats the same rejections of the previous Office Action, and the current Office Action

does not provide any new grounds of rejection. Thus, at this moment, it is not clear (a) what the alleged new grounds of rejections are, (b) whether Applicant's previous response had overcome all the rejections the Examiner set out in the previous Office Action.

If Applicant's previous had overcome all the rejections of the previous Office Action and there is no new grounds of rejection, withdrawal of the finality is respectfully requested.

Abstract Objection

In the Office Action, the Abstract was objected to as being divided into two paragraphs. This objection is respectfully traversed because, in this response, the Abstract was amended to be a single paragraph, as suggested by the Examiner. Accordingly, Applicant respectfully requests withdrawal of the objection to the Abstract.

Claim Objection

In the Office Action, Claim 3 was objected to for informalities. This objection is respectfully traversed because, in this response, claim 3 has been amended to delete the symbol "(?)" which was accidentally included in the previous response. Accordingly, Applicant respectfully requests withdrawal of the objection for claim 3.

Rejections Under 35 U.S.C. § 103

Claims 1-5 stand rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over U. S. Patent No. 6,268,841 issued to Cairns, *et al.* ("Cairns"). Applicant respectfully traverses this rejection for at least the following reasons.

As mentioned in Applicant's previous response, independent claim 1 recites "a controller ... generating ... *digital* gamma data having a plurality of gradation values". An example of this claimed feature is shown in Fig. 2 of the present application, in which the controller 20 (of Fig. 1) comprises a signal process unit 21 and a gamma data generating unit 22. The gamma data generating unit 22 "generates and outputs *digitized* gamma data referring to a reference voltage applied from the power unit 16 ..." (Specification, page 7, lines 4-6).

Claim 1 further recites "a column driver unit converting the *digital* gamma data into an analog gradation voltage and generating a column signal based on the column control signal, the RGB data and the analog gradation voltage". An example of this claimed feature is shown in Fig. 3 of the present application, in which the column driver IC 14 (of claim 1) comprises the memory 32 which temporarily stores the digitized gamma data from the gamma data generating unit 22 (of Fig. 2). Thus, according to claim 1, *digitized* gamma data is transferred from the controller to the column driver unit.

In this regard, the Examiner asserted "Figure 9 (of Cairns) shows that the scanning drive circuit (item 2) as being a separate driving system receives gamma data and performs a D/A (item 31) conversion on the information ...". This assertion is respectfully disagreed with.

Briefly speaking, Cairns *does not* disclose or suggest digitized gamma data, as claimed. For example, Fig. 9 shows gamma correction reference voltages $V_{ref}(0:2^{m-1})$ provided to the time-multiplexed D/A converter array 31. An exemplary view of the gamma correction reference voltages is shown in Fig. 7 of Cairns, in which the actual analog gamma corrected reference voltages are provided to a voltage selector 23b of the column decoder. Thus, the gamma

correction reference voltages $V_{ref}(0:2^m-1)$ provided to the D/A converter array 31 are *not digitized*.

It appears that the Examiner is not certain as to which digital signal the D/A converter array 31 converts to an analog signal. Fig. 9 shows a digital data driver 2, to which digital data is applied. Fig. 7 shows how the digital data is D/A converted with reference to the gamma corrected reference voltages $V(0:15)$. As shown therein, the digital data is provided to the decoder 23a via four lines (4 bit) to activate one of the sixteen lines ($2^4=16$).

Thus, in Fig. 9, the D/A converter array 31 converts the digital data provided to the digital data driver 2 to an analog signal. The D/A converter array 31 does not D/A convert the (2^m-1) number of analog gamma corrected reference voltages to another (2^m-1) number of analog gamma corrected reference voltages.

For these reasons, it is submitted that Cairns does not disclose or suggest digitized gamma data, as claimed. No secondary reference has been introduced to cure the deficiency from Cairns. Thus, it is submitted that claim 1 is patentable over Cairns. Claims 2-5 that are dependent from claim 1 would be also patentable at least for the same reasons.

Accordingly, Applicant respectfully requests withdrawal of the 35 U.S.C. § 103(a) rejection of claims 1-5.

Claims 6-17 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Cairns in view of Applicant's Admitted Prior Art (AAPA) and further in view of U. S. Patent No. 6,480,180 issued to Moon ("Moon"). This rejection is respectfully traversed.

Independent claim 6 recites:

“...
a controller ... generating ... *digital gamma data* having a plurality of gradation values with reference to the constant voltage from the power unit, ...;
...
a column driver unit decoding the differential signal, *converting the digital gamma data into an analog gradation voltage*, and outputting a column signal based on the column control signal, RGB data and the analog gradation voltage”

As previously mentioned, Cairns fails to disclose or suggest digitized gamma data. Thus, it would not be possible for Cairns to disclose or suggest a controller generating digital gamma data and a column driver unit converting the digital gamma data into an analog gradation voltage.

In this regard, AAPA merely describes that differential signal method has been adopted in data transmission technique, but does not disclose or suggest digitizing gamma data. Thus, AAPA fails to cure the deficiency from Cairns. Also, Moon merely describes transmitting an image signal by a low voltage differential signaling (LVDS) specification but fails to disclose or suggest digitizing gamma data.

Since none of the cited references discloses or suggests the claimed feature of digitizing gamma data and transferring the digitized gamma data from a controller to a column driver, it is respectfully submitted that claim 6 is patentable over Cairns, AAPA and Moon. Claims 7-17 that are dependent from claim 6 would be also patentable at least for the same reasons.

Accordingly, Applicant respectfully requests withdrawal of the 35 U.S.C. § 103(a) rejection of claims 6-17.

Other Matters

In this response, claim 1 has been amended to incorporate some of the limitations of claim 3. Claim 4 has been amended to present in independent form by incorporating the limitations of claim 1. Also, claim 5 has been amended solely for better wording.

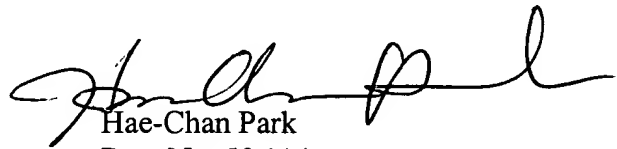
CONCLUSION

Applicant believes that a full and complete response has been made to the pending Office Action and respectfully submits that all of the stated objections and grounds for rejection have been overcome or rendered moot. Accordingly, Applicant respectfully submits that all pending claims are allowable and that the application is in condition for allowance.

Should the Examiner feel that there are any issues outstanding after consideration of this response, the Examiner is invited to contact the Applicant's undersigned representative at the number below to expedite prosecution.

Prompt and favorable consideration of this Reply is respectfully requested.

Respectfully submitted,



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Date: September 14, 2004

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ATTACHMENT: SUBSTITUTE ABSTRACT